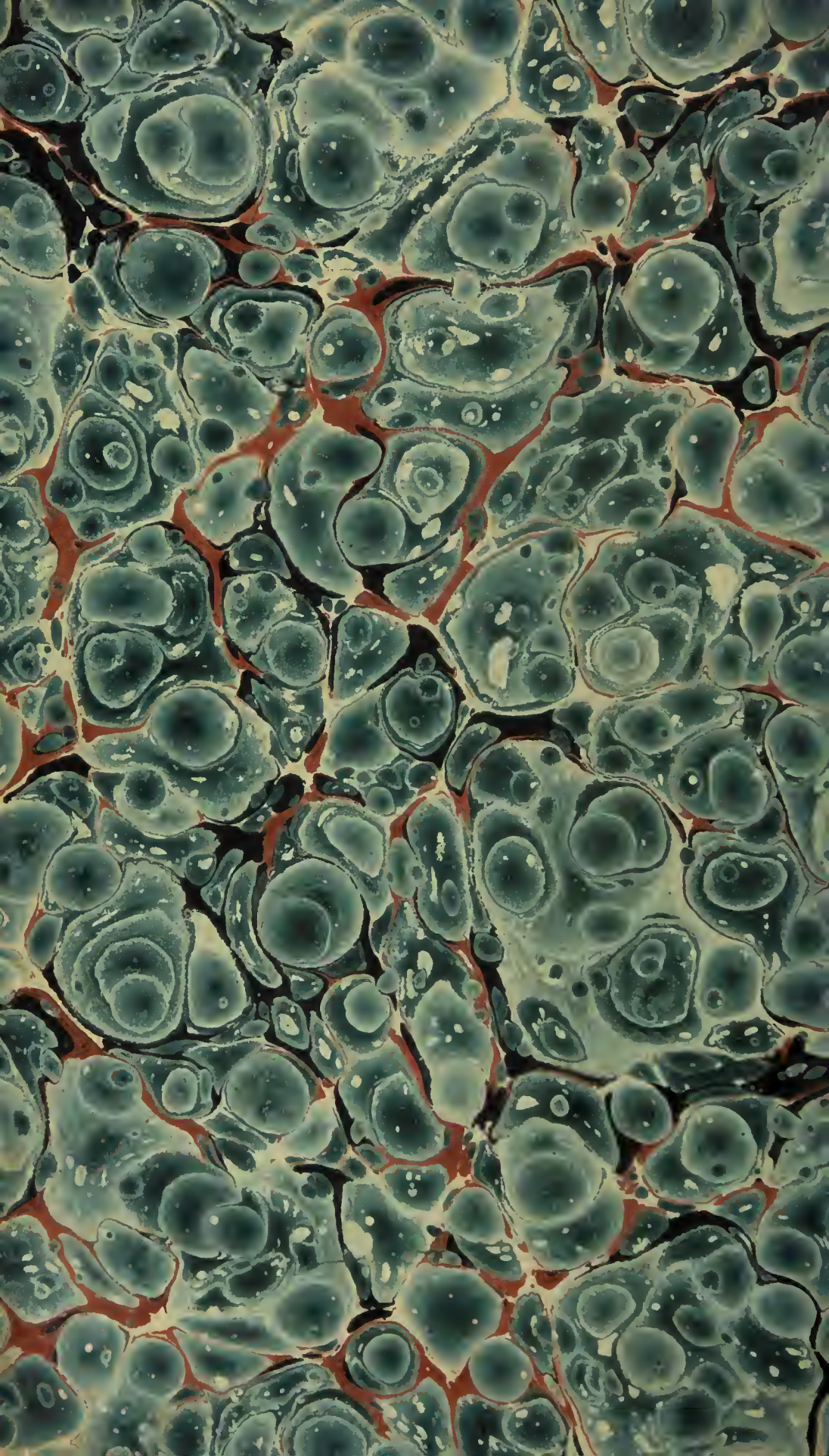

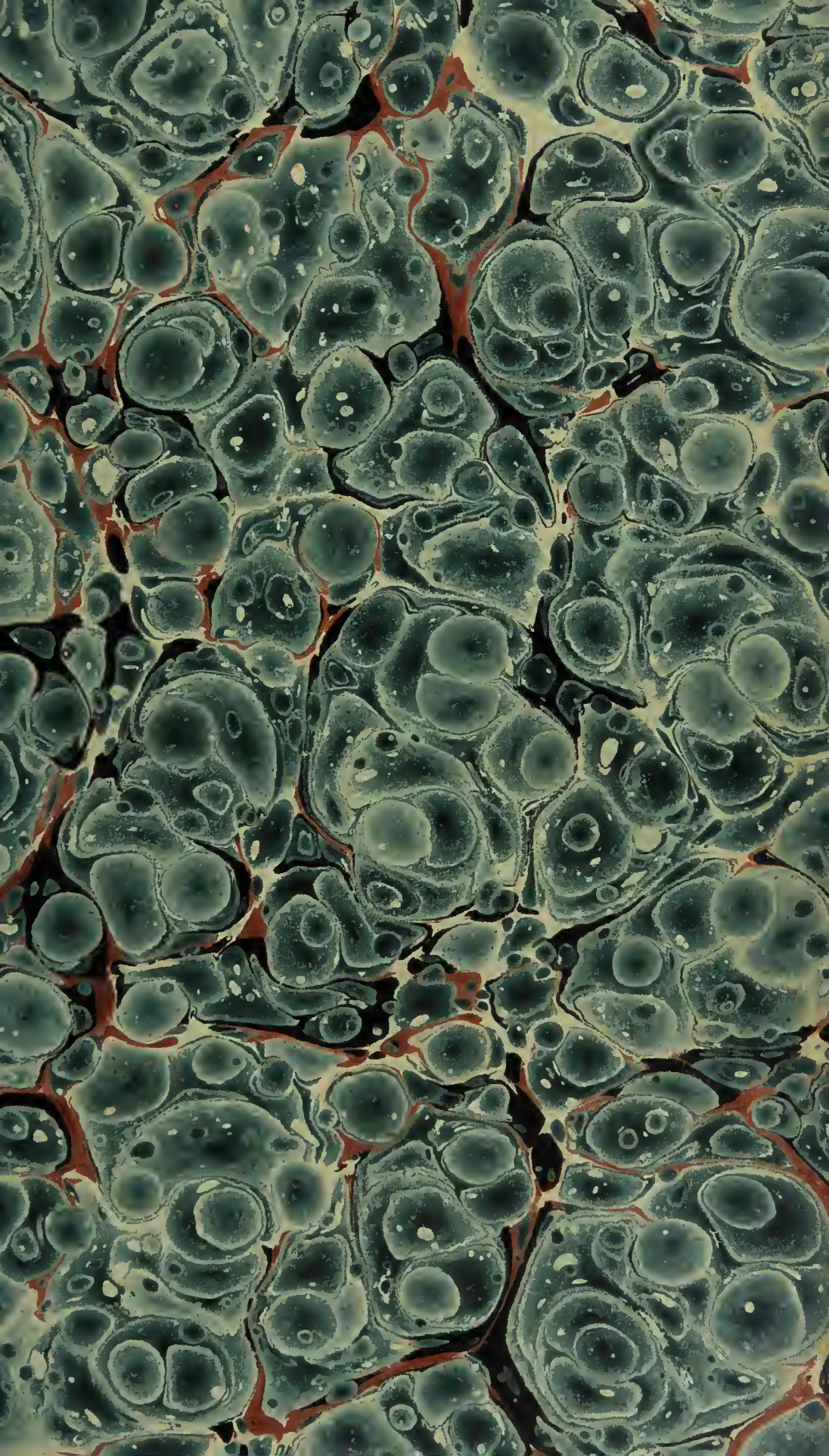

THE

NATURAL HISTORY

OF

BRITISH INSECTS;

EXPLAINING THEM

IN THEIR SEVERAL STATES,

WITH THE PERIODS OF THEIR TRANSFORMATIONS,
THEIR FOOD, ŒCONOMY, &c.

TOGETHER WITH THE

HISTORY OF SUCH MINUTE INSECTS

AS REQUIRE INVESTIGATION BY THE MICROSCOPE.

THE WHOLE ILLUSTRATED BY

COLOURED FIGURES,

DESIGNED AND EXECUTED FROM LIVING SPECIMENS.

By E. DONOVAN,

VOL. II.

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MDCCXCIII.

THE

NATURAL HISTORY

OF

BRITISH INSECTS.

PLATE XXXVII.

PAPILIO IRIS.

[illegible]

[illegible]

GENERIC CHARACTER.

Fig. [illegible]

[illegible]

SPECIFIC CHARACTER.

[illegible]

[illegible]

[illegible]

[illegible]

THE

NATURAL HISTORY

OF

BRITISH INSECTS.

PLATE XXXVII.

PAPILIO IRIS.

EMPEROR OF THE WOODS, OR PURPLE HIGH FLYER.

LEPIDOPTERA.

GENERIC CHARACTER.

Papilio.

Antennæ clavated. Wings when at reſt, erect. Fly by day.

SPECIFIC CHARACTER.

Wings indented; above, purple; darker round the Edges, with ſeven diſtinct white Spots on the firſt Wings; on the ſecond, an irregular broad white Stripe, and a red Eye. Beneath, black, brown, and white.

Linn. Syſt. Nat. p. 476. P. ex.

The Papilio Iris is eſteemed among the beautiful, and placed with the rare of the *Engliſh Lepidoptera.* The curſory reader may not perceive that ſuperiority, particularly as many of the minute Inſects infinitely excel in real beauty and richneſs of colouring; but the ſcien-

tific will be ever ready to give it the firſt place as a Britiſh Papilio, and to thoſe a figure of the Caterpillar and Chryſalis will be an acceptable acquiſition. It derives the title of Purple High Flyer, as it very rarely deſcends to the ground; except in ſome few inſtances, it has never been taken but in the moſt elevated ſituations, and even thoſe inſtances have been after a ſtrong wind, or heavy rain: The tops of the loftieſt foreſt trees afford it an aſylum, and in the Caterpillar and Chryſalis ſtate, it is preſerved from the wanton cruelty of man, by the almoſt inacceſſible height of its habitation. They feed on the Sallow, *ſalix caprea*, and the Caterpillars are obtained by beating the branches of the tree with a pole twenty or thirty feet in length; it is then but a neceſſary precaution to cover the ground beneath with large ſheets to a certain diſtance, or the inſects which fall, will be loſt among the herbage.

It is in Caterpillar about *May* and *June*; it paſſes to the Chryſalis ſtate, and in *July* or *Auguſt* is a Papilio.

The great difficulty and trouble to rear the Caterpillars, when found; and greater difficulty to take the Fly, has ſtamped a valuable conſideration on it, and particularly ſo when fine, and a high price is but eſteemed an adequate compenſation for it if in good preſervation. The male is ſmaller, but more beautiful than the female; the upper ſide of the wings of the female not being enriched with that vivid change of purple which the male poſſeſſes in ſuch an eminent degree; but the underſide of the female is far richer in the various teints of colour than the male: they are both beautifully ſpotted, mottled, and waved with brown, black, white, and orange. The Chryſalis is of a very delicate texture, much reſembling thin white paper, and is tinged in ſeveral parts with a very lively purple hue which it borrows from the wings of the encloſed inſect, and bears the characteriſtic mark of a Papilio, by being ſuſpended from the tail, with the head downward.

PLATE XXXVIII.

CIMEX STAGNORUM.

Water Bug.

Hemiptera.

Shells or upper Wings ſemi-cruſtaceous, not divided by a ſtraight Suture, but incumbent on each other; Beak curved downward.

GENERIC CHARACTER.

Cimex Antennæ longer than the Thorax. Thorax margined. In each Foot three Joints.

SPECIFIC CHARACTER.

Black, brown, long, ſlender. Head one third of its whole length. Antennæ as long as the Head, and very ſlender. Eyes minute, prominent. Fore Legs ſhorteſt, length half an inch, breadth one third of a line.

Linn. Syſt. Nat.

Many ſpecies of the *Cimex* genus differ ſo materially in their general form, that very nice attention is neceſſary to diſcriminate the ſpecies which evidently belong to this extenſive family. The external appearance of the Houſe, or Scarlet Bug, cannot intimate the connection to the ſame genus with this ſlender bodied inſect; but ſo they are arranged by Linnæus, and ſo they will appear on a proper inſpection of thoſe parts which conſtitute their generic character.

The preſent ſpecies is common, and may be taken during great part of the warm ſeaſons. We have an Inſect of the ſame genus (*Cimex Lacuſtris*) which has frequently attracted notice by the variety and activity of its motions, when ſporting on the ſurface of ſtanding pools, or other ſtanding water: It appears to fly, or ſkim the ſurface, but its wings are not often expanded, the lightneſs of its body

and length of its legs, permitting it to dart with great velocity in any direction, and when it alights, it cauſes only a gentle tremulous motion beneath it. Its habits have much affinity to the generality of aquatic inſects, and being conſtantly found on that element, would almoſt determine it to be of that race; but it is rather amphibious, and very rarely deſcends beneath the ſurface. It will at intervals reſt for ſeveral minutes motionleſs on the water, its ſix legs are then expanded, and the tarſi of the feet only touch the ſurface; but the *Cimex Stagnorum* is remarkable for the regularity and carefulneſs of all its actions; it rarely runs, but treads the water, ſlow, and ever appears to apprehend danger; it frequently pauſes ſuddenly, and if it then perceives any thing diſagreeable, retires. Aquatic Inſects are generally ſupplied at ſeveral parts of their body with an oily matter that the water cannot penetrate, and the legs of this Inſect is apparently poſſeſſed of that property.


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PLATE XXIX.

[illegible]

PLATE XXXIX.

COCCINELLA.

COLEOPTERA.

GENERIC CHARACTER.

Antennæ knotted, truncated. Palpi longer than the Antennæ; body hemiſpheric. Shells and Thorax bordered. In each Foot three Joints.

FIG. I. and FIG. IV.

SPECIFIC CHARACTER.

COCCINELLA 22—PUNCTATA.

Head black, Corſlet and Shells yellow. The firſt with five black Spots, the latter with twenty-two. Length $1\frac{1}{2}$ line.

FIG. II.

14. PUNCTATA.

Shells orange, with fourteen black Spots. Head black. Thorax black in the Center, with an orange Margin and a black Spot on each Side.

FIG.

FIG. III.

6. PUSTALATA.

Head, Thorax, and Shells black, with three red Spots on each Shell. Length 1½ line.

FIG V.

7. PUNCTATA.

LADY COW, OR LADY BIRD.

Head and Thorax black, Shells red, with ſeven black Spots; length, three or four lines.

The hiſtory of thoſe ſeveral inſects ſo nearly reſemble each other, that one general account will compriſe all that can be ſaid of any of the ſpecies. The larva is not unlike the adult inſect, though its body is longer and tapering, and it hath no ſhells to defend it if in danger; its ſecurity therefore depends on its feet, which are rather longer, or at leaſt appear longer, than in the after-ſtate; all the ſpecies, whether as the larva or the adult, commonly feed on graſs, but they as frequently are taken on the plantain, thiſtle and roſe, or any other plant, whether wild or cultivated. They faſten themſelves to the leaves of any plant that is near when they enter the Chryſalis ſtate, and its appearance is then as if it were tied to the leaf by threads which paſs each other in tranſverſe directions; they remain only a few days in the Chryſalis, as it undergoes but little change. May, June, and July, or later if the weather ſhould prove fine, is the time to find them; many of the ſpecies are ſo numerous in almoſt every ſituation, that collectors give little trouble to obtain them, or at leaſt ſearch for ſuch only as are moſt uncommon.

PLATE XL.

PHALÆNA ROSEA.

Red Arches.

Lepidoptera.

GENERIC CHARACTER.

Antennæ taper from the baſe. Wings in general contracted when at reſt. Fly by night.

SPECIFIC CHARACTER.

Roſe colour. On the ſuperior Wings a dark, waved, or arched line, and a row of ſpots near the margin.

The Caterpillar of this *Phalæna* feeds on the Oak. Our ſpecimen was taken from an oak at Norwood, July 15. They are not very common, although found, during the month of July, in ſeveral parts near London.

FIG I.

THE LARVA

OF THE

Coccinella 7—Punctata.

In Plate XXXIX we have repreſented ſeveral ſpecies of the *Coccinella* in their perfect or adult ſtate. Our preſent figure is the larva of the 7 *Punctata*, Fig. V. It is a very common Inſect; and will feed on almoſt every kind of vegetable food.

PHALÆNA PRASINANA?

SCARCE SILVER LINE.

LEPIDOPTERA.

Phalæna.

SPECIFIC CHARACTER.

Body and under Wings white, firſt Wings green, with two oblique arrow lines of pale yellow.

We poſſeſs two ſpecies of the Green Silver Line; one Phalæna Praſinana, of Linnæus; the ſecond unknown to that author; but ſince deſcribed in the *Species Inſectorum* of *Fabricius*. Thoſe two ſpecies nearly reſemble each other, are both taken from the Oak, and are diſtinguiſhed only in ſome few particulars, the *Scarce Silver Line* has its Superior Wings of a plain pea-green, with two ſtripes of feint yellow, the Body and inferior Wings are of an immaculate white. But the Common Silver Line is more variegated in its colour, having a daſh of a paler hue between each Silver Line, and an orange or crimſon border. The Scarce Silver Line is taken in July, in woods.

Note, Fabricius appears to have changed the name of this Inſect in his *Spec Inſ.* for in the *Syſtem Entom.* he calls the common Silver Line Praſinana, the ſame as Linnæus does, which in the *Spec* he has altered to *Fagana*.

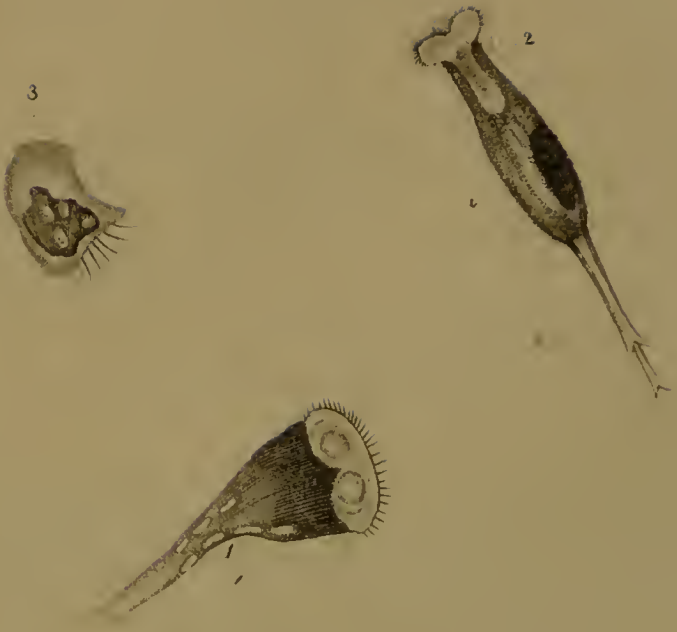
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PLATE XLI

FIG. I.

VORTICELLA POLYMORPHA.

GENERIC CHARACTER.

A Worm, capable of contracting or extending itſelf, naked, with rotatory cilia.

Many-ſhaped Vorticella green, opaque.

It is impoſſible to deſcribe the various forms thoſe little Inſects can aſſume; and, from the microſcope, it is both doubtful and difficult to give a correct figure of it, as the activity of its motions and changes frequently miſplace it from the verge of the focus. It is ſcarcely perceptible to the naked eye, and is generally of a green colour.

FIG. II.

VORTICELLA ROTATORIA.

SPECIFIC CHARACTER.

Cylindrical Vorticella, with a little foot projecting from the neck; a long tail, furniſhed with four points.

Of all the ſpecies of minute Inſects, this Vorticella ſeems to have engaged the attention of the curious moſt. Baker has deſcribed

it under the title of *the Wheel Animalculum*, and hence it is well known. It is found in gutters, or leaden pipes, in the ſummer. This Inſect poſſeſſes one property by no means common to larger animals, or even known of many of the minuter kinds; it lives in the water, but may be kept dry for months; and when again it is immerged in that element, it will regain its life and motion in half an hour.

FIG. III.

TRICHODA LYNCEUS.

GENERIC CHARACTER.

An inviſible, pellucid, hairy Worm.

SPECIFIC CHARACTER.

Nearly ſquare; with a crooked beak. The mouth hairy.

FIG. IV.

KERONA PATELLA.

GENERIC CHARACTER.

An inviſible Worm with horns.

With one valve, orbicular, chryſtal'ine; the fore-part notched; the body lies in the middle of the ſhell: above and below are hairs or horns, of different lengths, jutting out beyond the ſhell, and acting inſtead of feet and oars.

Müller's Ani. Infuſ.


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PLATE XLII.

FIG. I.

ICHNEUMON [illegible]

HYMENOPTERA.

[illegible]

GENERIC CHARACTER.

[illegible]

SPECIFIC CHARACTER.

[illegible]

FIG. II.

[illegible]

SPECIFIC CHARACTER.

[illegible]

PLATE XLII.

FIG. I.

ICHNEUMON RAMIDULUS.

HYMENOPTERA.

Wings four; generally membraneous. Tail of the females armed with a ſting.

GENERIC CHARACTER.

Ichneumon. Jaws, without tongue. Antennæ of more than 30 joints, long, filiform, vibrating. Sting within a bivalve ſheath.

SPECIFIC CHARACTER.

Tawny brown. Thorax beneath, and extremity of the abdomen, black. Abdomen curved and compreſſed.

FIG. II.

ICHNEUMON RAPTORIUS.

SPECIFIC CHARACTER.

Head, thorax, and extremity of the abdomen black; center ſpot of yellow on the thorax; and two firſt diviſions of the abdomen bright roange. Legs black and brown.

Ichneumons are the moſt voracious of all the winged Inſects;—in their nature, robuſt and powerful, and armed with a formidable ſting; they are the dread, and deſtroyer of other tribes, and mortal enemies to each other; like the animal * whence their ſignificant appellation is derived, they exiſt by rapine and plunder, and ſupport their infant offspring on the vitals of larger Inſects.

The female Ichneumon, when ready to lay her eggs, is ſeen eagerly ruſhing from one plant to another, if its prey offers, which is generally the Larva of the *Phalæna*, *Papilio*, &c. it darts down with the ferocity of an eagle, and graſps the tender body in its claws; it is now in vain that the unwieldy animal attempts reſiſtance, as all its efforts are but the ſport of a ſavage conqueror. For raiſing the body almoſt upright, or into the form of a bow, the creature returns it in an inſtant, and daſhes the ſting up to the baſe, in the ſofteſt part of the caterpillar's body; this, if undiſturbed, it will repeat thirty or forty times, always chooſing a freſh ſpot for every new wound, and often entirely ſcarifying the Inſect. The ſtung animal refuſes to eat, and ſometimes its illneſs terminates in its death, though generally the eggs are matured, and the Inſects produced from the living body, ſo that if it ſurvives its miſery, and the wounds heal, the heat of the body ripens the embryos, and the young Ichneumons gnaw, and tear large paſſages through the body, to complete their delivery. July and Auguſt are the Months thoſe ſpecies we have deſcribed are on the wing.

* The Ichneumon is a well known animal in Egypt, particularly near the river Nile, and are uſeful for deſtroying the Eggs of the Crocodile, &c.

PLATE XLIII.

PAPILIO [illegible].

[illegible]

LEPIDOPTERA.

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

PLATE XLIII.

PAPILIO HYALE.

SAFFRON BUTTERFLY.

LEPIDOPTERA.

GENERIC CHARACTER.

Antennæ clavated. Wings, when at reſt, erect. Diurnal.

SPECIFIC CHARACTER.

Wings entire, rounded, deep yellowiſh orange. On the ſuperior wings a black, and on the inferior wings an orange ſpot in the center; and a deep irregular border of black on the margin. Antennæ and legs yellow. Breadth two inches.——*Syſt. Ent.* 477. 148.—*Linn. Syſt. Nat.* 2. 764. 100.—*Fn. Sv.* 1040.

The *Papilio Hyale* has been deſcribed by ſeveral authors, Engliſh and Foreign, and the natural hiſtorians of Germany have generally noticed it. Unlike many Inſects we have in our country, it is found in every part of Europe, but in greater abundance in Africa and America.

Its breadth in England rarely exceeds two inches; but influenced by a warmer climate, they arrive at a higher degree of perfection than in thoſe northern countries, at leaſt they are commonly taken much larger. With us it has ever been eſteemed as a rare Inſect, though ſeen this ſeaſon in Kent in greater plenty than for ſeveral years; but as they were probably only an accidental brood, they may again diſappear for a conſiderable time. The Fly is to be taken in autumn, but ſeldom after Auguſt.

Our Figure is of the male;—the female has ſeveral irregular yellow ſpots on the black borders.

PLATE XLIII.

MELOE. PROSCARABEUS.

Coleoptera.

GENERIC CHARACTER.

Antennæ globular, the laſt globule oval. Thorax roundiſh. Shells ſoft. Head gibbous, and bent downwards.

SPECIFIC CHARACTER.

Blue, black. No wings. Shells ſhort. Abdomen long. Antennæ thickeſt in the middle. Head broad. Thorax narrower than the head, and without margin. Length $1\frac{1}{4}$ inch.———*Syſt. Ent.* 259. 1.—*Linn. Syſt. Nat.* 2. 679. 1.—*Fn. Sv.* 826.

It is by no means for the beauty, but ſingularity of this creature that we have given it a place in our preſent ſelection. If it is too perfect for the larva of an Inſect, it certainly appears too imperfect for the adult ſtate; it has ſhells, but cannot fly, and their length compared with the proportion of the body contributes much to its awkward appearance. It is very quick-ſighted, and runs with ſwiftneſs when in danger. After death the body is conſiderably contracted, and the native brilliancy of colour it poſſeſſed while living immediately vaniſhes. When touched, a brown liquor oozes from the ſides.

We have ſeveral ſpecies of the Meloe differing in ſize, colour, and proportion; the *Meloe Proſcarabeus* is the moſt common, at leaſt near London. It feeds under the ſurface of the ground, on the tender fibrils of plants, and prefers the light earth of the flower-garden for its devaſtation. May be taken in May or June.

PLATE XLIV.

THE LARVA OF THE LIBELLULA DEPRESSA.

In Plate 43 of this work we have represented the Libellula Depressa in the winged state, [illegible]

The Larvæ of [illegible]

PLATE

PLATE XLIV.

THE LARVA OF THE LIBELLULA DEPRESSA.

In Plate 24 of this work we have repreſented the LIBELLULA DEPRESSA in the winged ſtate, and our preſent Figure is, of the Larva of that Inſect. We have before deſcribed it as a ſavage voracious creature in every ſtate of its exiſtence. The Larva, which is an aquatic, feeds on Inſects of that element; and when it becomes adult, Moths, Butterflies, and other winged Inſects are its prey. As Lepidopterous Inſects are not provided with any weapons, defenſive or offenſive, it will encounter the largeſt, graſp them in its claws, and tear them to pieces. Its mouth is ſpacious, and well adapted for that purpoſe.

The Larvæ of moſt winged Inſects paſs to the Aurelia, or Chryſalis ſtate, and thence produce the Fly; but the Larvæ of the *Libellulæ* never undergoes that change, and though its appearance is altered ſeveral times in its progreſs to perfection, it does not become dormant. When the ultimate period of its laſt change arrives, it crawls to the bank, or ſide of the ditch, and affixing its legs firmly to the ground, or graſs, it collects all its ſtrength, and by one violent effort the ſuture between the Thorax and Abdomen is broken, whence the Head and Thorax is protruded; after ſome pauſe the exuvia is caſt off, and the Wings, which were before enwrapped in the ſhort caſes at the bottom of the Thorax, expand. The creature now entirely formed for flight, only waits a ſhort time to exhale the ſuperfluous moiſture, and then ruſhes into the air, to ſpread havoc and diſorder.

PLATE XLV.

PHALÆNA JACOBÆÆ.

CINNABAR MOTH.

LEPIDOPTERA.

GENERIC CHARACTER.

PHALÆNA.

Feelers Taper, Wings Deflex, Flies by Night.

SPECIFIC CHARACTER.

Antennæ and body black. First Wings lead colour, with longitudinal red line [illegible] the exterior margin, and two red spots near the [illegible]. Second Wings red, with a black margin.—[illegible] [illegible]—Lin. Syst. Nat. [illegible]—Fab. Ent. [illegible]

[illegible] never given [illegible] [illegible] [illegible] [illegible] [illegible] the [illegible] the Cinnabar Moth Caterpillar is generally [illegible] and though many [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] be found in plenty [illegible] the Caterpillar is generally [illegible]

PLATE XLV.

PHALÆNA JACOBÆÆ.

Cinnabar Moth.

Lepidoptera.

GENERIC CHARACTER.

Phalæna.

Spiral Trunk; Back ſmooth, without Creſt.

SPECIFIC CHARACTER.

Antennæ and body black. Firſt Wings dark olive, with longitudinal red line near the anterior margin, and two red ſpots near the exterior. Second Wings red, with a black margin.——*Syſt. Ent.* 588. 113.—*Linn. Syſt. Nat.* 2. 839. 111.—*Fn. Sv.* 1155.

As the Rag-wort grows ſpontaneouſly in almoſt every part of the country, the yearly increaſe of the Cinnabar Moth Caterpillars is generally conſiderable; and though many muſt inevitably periſh before they arrive at perfection, the Fly may always be found in plenty in June, the Caterpillars in July and Auguſt.

PLATE XLVI.

PLATE XLVI.

PHALÆNA FESTUCÆ.

Gold Spot Moth.

Lepidoptera.

GENERIC CHARACTER.

Spiral Trunk; Back ſmooth, without Creſt.

SPECIFIC CHARACTER.

Firſt Wings brown, with two gold-ſilver ſpots on each. Second Wings and Abdomen pale brown. Head. Antennæ and Thorax bright orange brown.——*Syſt. Ent.* 607. 71.—*Linn. Syſt. Nat.* 2. 845. 131.—*Fn. Sv.* 1170.—*Degeer Inſ. Vers. Germ.* 2. 1. 312. 3.—*Albin. Inſ. Tab.* 84. *Fig* G. H.—*Wilks Pap.* 8. *Tab.* 1. *a.* 17.—*Acta Holm.* 1748. *Tab.* 6. *Fig.* 3. 4.—*Kleman. Inſ.* 1. *Tab.* 30. *Fig.* A.

The Caterpillars which are ſmooth, and of a plain green colour, are found on ſuch plants as grow in ditches, or fenny ſituations.—The Siſymbrium Naſturtium, *Water Creſs*, is its common food, but it will devour with avidity moſt aquatic vegetables, particularly the *Feſtuca Fluitans*, *Floating Feſcue Graſs*. It is eſteemed one of the rareſt Species of Phalænæ we have in this country, its elegant form and rich colouring determines it alſo one of the moſt beautiful. Near

London it has been ſought with moſt ſucceſs in the Batterſea Fields, or on thoſe banks which abound with aquatic plants, between Batterſea and Richmond; the marſhes in the vicinity of Deptford and Rotherhithe have been yet more productive; we do not however underſtand that any have been taken this ſeaſon about the metropolis.

The very ſingular manner in which this Caterpillar conſtructs its web, deſerves particular notice: previous to its transformation from the *Larva* to the *Aurelia*, it quits the tender plants which afford nouriſhment, and retires to thoſe, better calculated for its protection, in its defenceleſs ſtate; its choice is generally the Scirpus Lacuſtris (*Bull Ruſh*), or the ſtouteſt plant that is near, if its leaves are ruſhy and ſtrong. Its firſt proceſs is to make a deep inciſion acroſs the leaf, which it effects with little labour, as its mouth is well armed for the purpoſe; the upper part of the leaf being thus deprived of its ſupport, inſtantly becomes dependent; the Caterpillar embraces the two ſurfaces of the fractured leaf, and weaves its web between. The web is of an exquiſite texture and whiteneſs, and bears great reſemblance to the webs of ſome ſpiders that frequent watery places.

The Caterpillars are found in June and July, the Fly in Auguſt.

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PLATE XLVII.

FIG. I.

PROTEUS DIFFLUENS.

GENERIC CHARACTER.

An inviſible, very ſimple, pellucid Worm, of a variable form.

SPECIFIC CHARACTER.

Proteus, branching itſelf out in a variety of directions.

FIG. II.

TRICHODA BOMBA.

GENERIC CHARACTER.

An inviſible, pellucid, hairy worm.

SPECIFIC CHARACTER.

Changeable, with a few hairs diſperſed on the fore part.
Müller's Ani. Inf.

Proteus Diffluens, under ſome of its changes appears rather a ſhapeleſs maſs, than an animated body; it conſiſts of gelatinous, pellucid ſubſtance, replete with dark coloured molecules, which either direct or attend, the internal exertions and actions of the animalculum; it puſhes forth branches of various ſhapes.

Is found in fenny ſituations, but very rare; the author of the *Animacula Infuſoria*, obſerved it only twice.

TRICHODA BOMBA.

Inconſtant as the former, and nearly as difficult to define; it is ſometimes ſpherical, immediately after it will become oval, Kidney ſhaped, &c. It is very lively, and darts with much velocity; is thick, pellucid, and of a clay colour, or brighter.


1


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PLATE XLVIII.

FIG. I.

TIPULA CROCATA.

[illegible]

Wings two.

GENERIC CHARACTER.

Head long. [illegible]

[illegible]

[illegible] back [illegible] round the [illegible] brown feet.

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

FIG.

PLATE XLVIII.

FIG. I.

TIPULA CROCATA.

DIPTERA.

Wings two.

GENERIC CHARACTER.

Head long. Palpi 4, curved. Trunk very ſhort.

SPECIFIC CHARACTER.

Black ſpotted with yellow. Legs tawny, with black feet, and a black ring round the poſterior thighs. Wings tawny, with a marginal brown ſpot.

Syſt. Ent. 748. 5.—*Linn. Syſt. Nat.* 2. 971. 4.—*Fn. Sv.* 1739.
Geoff. Inſ. 2. 553. 7. *Tab.* 19. *Fig.* 1.
Degeer Inſ. 6. 349. 10.
Raj. Inſ. 72. 4.
Schaeff. Icon. Tab. 126. *Fig.* 4.
Scop. carn. 845.

FIG.

FIG. II.

TIPULA RIVOSA.

SPECIFIC CHARACTER.

Brown-grey. Eyes black. Antennæ feathered. Wings larger than the body, with three brown patches near the margin. Tail of the female bifid. Length one inch.

Syſt. Ent. 748. 2.—*Linn. Syſt. Nat.* 2. 971. 2.—*Fn. Sv.* 1738.
Geoff. Inſ. 2. 554. 2.
Degeer. Inſ. 6. 341. 2. *Tab.* 19. *Fig.* 1.
Raj. Inſ. 72. 2.
Scop. carn. 846.
Acta Holm. 1739. *Tab.* 9. *Fig.* 8.
Sulz. Inſ. Tab. 20. *Fig.* 128.

The Genus *Tipula*, compriſes an extenſive family of the Dipterous Order, or of ſuch Inſects as are furniſhed with two Wings only. Our largeſt Species are *Tip.* Rivoſa, Crocata, Lunata, &c. the moſt common is *T.* Oleracea, generally known by the trivial appellations, *Long Legs*, *Old Father*, &c. It is, as are alſo the other Species, perfectly harmleſs and inoffenſive; yet their ſingular form, and more particularly the extraordinary diſproportion of their legs, operates frequently to their diſadvantage with the ignorant, who readily ſuppoſe they have to avoid, the ſecreted ſting, of whatever appears aukward or uncommon.

Our ſmaller Species are infinitely more numerous, and many of them are not deſcribed, being ſo very minute as to remain unnoticed. The *Tipula Plumoſa*, Plate XXII, differs materially in its general appearance from the larger kinds.

We rarely find a ſpecimen of the larger kinds of Tipula with the legs complete; the loſs of one or two of thoſe members do not materially retard the briſkneſs of its motions, but it cannot fly after ſuffering a total amputation, though it will then live a conſiderable time.

The Tipula Rivoſa being entangled by two of its legs in the ſnare of a large ſpider [ARANEA DIADEMA], at firſt endeavoured to diſengage them by force, but this rather added to its calamity, and a third leg was attracted by the glutinous matter on the threads; the ſpider approached, and the creature accelerated its eſcape by leaving its legs in the web. It is very common to obſerve the broken limbs of the *Tipulæ* in the ſnares of this ſpecies of ſpider.

The Larvæ of many Tipulæ, more eſpecially the very minute ſorts, are found in ſtanding water, but the larger, generally feed on the roots of graſs, and may be found by turning up the light ſurface of the earth. The Tipula Rivoſa is taken in May and June, the Tipula Crocata in June and July; the latter is obſerved in the flower-garden or orchard.

PLATE XLIX.

ARANEA DIADEMA.

WHITE CROSS, SPIDER.

APTERA.

No wings.

GENERIC CHARACTER.

Legs eight. Eyes eight.

SPECIFIC CHARACTER.

Abdomen gibbous, red-brown, with white ſpots in the form of a croſs.

Syſt. Ent. 434. 13.—*Linn. Syſt. Nat.* 2. 1030. 1.
—*Fn. Sv.* 1993.

ARANEA cruciger.—*Degeer. Inſ.* 7. 218. 1. *Tab.* 11. *Fig.* 3.

ARANEA Linnæi.—*Scop. carn.* 1077.
Mouff. Inſ. 233. *Fig.* 1.
Aldrov. Inſ. 608. *Fig.* 9.
Tonſt. Inſ. Tab. 18. *Fig.* 17. 19. 20.
Raj. Inſ. 18. 2.
Liſt. Aran. Fig. 2.
Friſch. Inſ. 7. *Tab.* 4.
Clerk. Aran. Tab. 21. *Fig.* 2.
Schaeff. Elem. Tab. 21. *Fig.* 2.
——— *Icon. Tab.* 19. *Fig.* 9.

The Genus *Aranea* includes a vaſt, if not endleſs variety of ſpecies, and though the greateſt diſſimilarity may be obſerved as to ſize, proportion, or colouring, of many individual kinds, yet the rapaciouſneſs

common to the family, is apparent in all. Our domeſtic Spiders are plain in their colours, and ſeldom attain a very extraordinary ſize; the gardens are infeſted by ſpecies ſomewhat larger, and more lively in their marks and teints, but if we wiſh to trace the juſt gradations of the beauty, or ſize, of thoſe deteſtable creatures, the foreſts abound; and will afford the higheſt gratification to the enquiries of the naturaliſt. We have Spiders purely white, or white ſtained with a lovely green; yellow, marked with a vivid red; purples ſhaded with the richeſt hues, and the brighteſt browns, beſpangled with the utmoſt elegance and ſymmetry: Yet under thoſe rich adornments which nature has ſo profuſely beſtowed on this complication of beauty, and ferocity, we diſcover inherent qualities, which, in larger animals, would become formidable, and though we feel confident of our ſuperiority over the inſidious art of ſuch a contemptible creature, yet the mind is ſuſceptible of an inward abhorrence at its touch, which neither the expanſion of philoſophy, or ignorance of its diſpoſition, will ſometimes ſuppreſs. It is probable, that *Thomſon*, in his deſcription of the Spider, felt this ſympathy of the human mind,

" ——— To heedleſs flies the window proves
A conſtant death; where, gloomily retired,
The villain Spider lives, cunning and fierce,
Mixture abhorr'd! Amid a mangled heap
Of carcaſes, in eager watch he ſits,
O'er-looking all his waving ſnares around.
Near the dire cell, the dreadleſs wanderer oft
Paſſes, as oft the ruffian ſhews his front;
The prey at laſt enſnar'd, he dreadful darts
With rapid glide along the leaning line;
And fixing in the wretch his cruel fangs,
Strikes backward grimly pleas'd: the flutt'ring wing,
And ſhriller ſound declare extreme diſtreſs,
And aſk the helping hoſpitable hand."

Early in the ſpring we find the neſts of Spiders in the crevices of old walls, trees, and other obſcure places. They are encloſed in webs of a white, yellow, or grey colour, varying according to the ſpecies;

ſpecies; immediately that the warmth of the ſun has hatched them, they diſperſe, it being no longer neceſſary to live in ſocieties, which indeed, would deprive ſome of their ſubſiſtence.

In February we took a neſt of minute yellowiſh eggs, which proved to be the infant offspring of the A. Diadema, they ſcarcely exceeded the ſize of a pin's head when hatched, and were of a bright yellow colour; at firſt their food was the common houſe fly, but their increaſe in bulk was ſo rapid that it was neceſſary to deſtroy many, to preſerve a few; we therefore ſelected four ſpecimens, which being fed in ſeparate glaſſes, and on different inſects, exhibited each a diſtinct degree of ſtrength, and colour. One ſpecimen deſtroyed thirty of the common houſe fly in a day; it then appeared much enlarged, and the colours were almoſt black, except the ſpots of white, which ſparkled with infinite luſtre; but being confined a week without a freſh ſupply, its colours were conſiderably faded; another week of abſtinence reduced its colours to a pale uniform brown, the body was much waſted, and the creature became perfectly ravenous. It devoured a vaſt quantity of food, and recovered much of its former colours a few hours after.

Our largeſt Spiders are incomparable for their ſize, or venomous qualities, to the productions of America, or of the eaſtern countries; in Germany they are far ſuperior in ſize to our ſpecimens, but in Surinam they are infinitely ſurpaſſed, Spiders of thoſe parts being often found with legs as thick as a gooſe-quill, and three or four inches in length, which with difficulty ſupport a body as large as a pullet's egg. Their ſnares are commonly extended from one branch of a tree to another, covering the ſpace of twenty or thirty feet, and is ſufficiently ſtrong to entangle the largeſt inſects. A. Seba has figured a Spider of this deſcription, as deſcending from an arm of a tree, into the neſt of a ſmall ſpecies of Humming Bird, to ſuck the blood of the parent, and eggs.

"The eyes of the Spider are a very beautiful microſcopic object, viewed either as tranſparent or opake; they have generally eight, two on the top of the head, that look directly upwards; two in the front, a little below the foregoing, to diſcover what paſſes before it; and on each ſide a couple more, one whereof points ſideways forward, the other ſideways backward; ſo that it can ſee almoſt all around it. They are immoveable, and ſeem to be formed of a hard, tranſparent, horny ſubſtance. The number of eyes is not the ſame in all the ſpecies of the

Spider. They have eight legs, with ſix joints, thickly beſet with hairs, and terminating in two crooked moveable claws, which have little teeth like a ſaw; at a ſmall diſtance from theſe claws, but placed higher up, is another, ſomewhat like a cock's ſpur, by the aſſiſtance of which it adheres to it's webs; but the weapon wherewith it ſeizes and kills its prey is a pair of ſharp crooked claws, or forceps, placed in the fore-part of the head. They can open or extend theſe pincers as occaſion may require; when undiſturbed they ſuffer them to lie one upon another. Mr. *Lewenhoeck* ſays, that each of theſe claws has a ſmall aperture, or ſlit, through which he ſuppoſes a poiſonous juice is injected into the wound it makes.

"The exuvia of the Spider, which may be found in cobwebs, being tranſparent, is an excellent object; and the fangs, or forceps, may be eaſier ſeparated from it, and examined with more exactneſs than in a living Spider. The contexture of the Spider's web, and their manner of weaving them, have been diſcovered by the microſcope. The Spider is ſupplied with a large quantity of glutinous matter within it's body, and five dugs, or teats, for ſpinning it into thread. This ſubſtance, when examined accurately, will be found twiſted into many coils, of an agate colour, and which, from its tenacity, may be eaſily drawn out into threads. The five teats are placed near the extremity of its tail; from theſe the aforeſaid ſubſtance proceeds; it adheres to any thing it is preſſed againſt, and being drawn out, hardens in the air. The Spider can contract or dilate at pleaſure the orifices through which the threads are drawn. The threads unite at a ſmall diſtance from the body, ſo that thoſe which appear to us ſo fine and ſingle, are notwithſtanding compoſed of five joined together, and theſe are many times doubled when the web is in formation."

——— The Spider parallels deſign,
Sure as Du Moivre, without rule or line.

POPE.

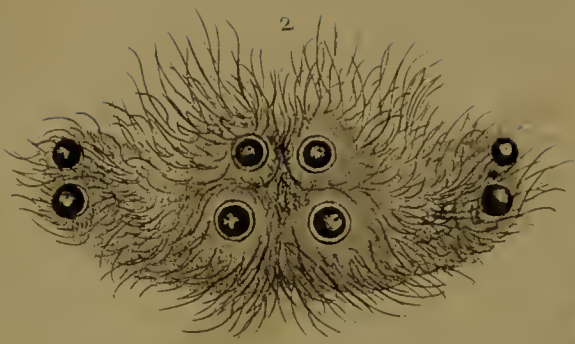
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PLATE I.

FIG. I.

[illegible]

FIG. II.

[illegible]

FIG. III.

[illegible]

FIG. IV.

[illegible]

PLATE L.

FIG. I.

The head and thorax, natural ſize.

FIG. II.

A fragment of the head, with the eyes complete, as it appears when examined by the ſpeculum of an opaque microſcope, deſcribing the ſituation of thoſe organs, in this ſpecies of Spider.

FIG. III.

One of its fore claws, natural ſize.

FIG. IV.

The extremity of the claw magnified. Every foot is conſtructed after this form.

PLATE LI.

PLATE LI.

PHALÆNA PISI.

Broom Moth.

Lepidoptera.

GENERIC CHARACTER.

Antennæ taper from the baſe. Wings, in general, contracted when at reſt. Fly by night.

Noctua.

SPECIFIC CHARACTER.

Firſt wings red brown, clouded with dark brown, two ſpots in the centre, and a pale yellow undulated line near the exterior margin. Second wings and abdomen light brown with a broad ſhade of a greyiſh colour.

Syſt. Ent. 610. 88.—*Lin. Syſt. Nat.* 2. 854. 172.—*Fn. Sv.* 1206.—*Degeer. Inſ. Verſ. Germ.* 2. 1. 322. 10.
Raj. Inſ. 160. 10.
Wilks pap. 4. *Tab.* 1. *a.* 7.
Roeſ. Inſ. 1. *Phal.* 2. *Tab.* 52.
Merian. Europ. Tab. 50.

The Caterpillars will devour indiſcriminately the leaves of the knot-graſs, of peaſe, the broom, &c. it is from the latter food, the Moth receives its name. The Caterpillars are found in July and

Auguſt, and deſcend into the ground late in September or the firſt week in October, and the Fly comes forth in July.

Caterpillars that enter the earth in the larva form, paſs to the chryſalis, and iſſue forth in the perfect or Fly ſtate, have no occaſion for a web to protect them; and therefore few ſpecies prepare one. But among thoſe which remain expoſed in the open air, a very ſmall proportion neglect to weave a web with the utmoſt ſkill and induſtry; the leaſt attentive to this apparently neceſſary precaution are the Papiliones, who, often regardleſs of their ſituations, are found [in chryſalis] ſuſpended againſt walls, the trunks, or branches of trees, and even paleings in very public roads.

PLATE LII.

SPHINX TIPULIFORMIS.

Currant Sphinx.

Lepidoptera.

GENERIC CHARACTER.

Antennæ thickeſt in the middle. Wings, when at reſt, deflexed. Fly ſlow, morning and evening only.

SPECIFIC CHARACTER.

Wings tranſparent, with black veins; a bright brown ſpot at the extreme angle of each ſuperior Wing. Abdomen, bearded; dark purpliſh black, with yellow bands.

Syſt. Ent. 549. 9.—*Linn. Syſt. Nat.* 2. 804. 32.—*Fn. Sv.* 1096.
Clerk. Icon. Tab. 9. *Fig.* 31.
Fueſl. Magaz. Tab. 1. *Fig.* 6.
Harr. Inſ. angl. Tab. 3. *Fig.* 8.

Sesia *Tipuliformis. Fab. Spec. Inſ. Tab.* 2. 157.

A very elegant, though common Species of the Sphinx *Genus:* it is taken in the months June and July. After the Inſect dies, the colour of the thorax and abdomen, except the yellow bands, is entirely black, or black with a very faint gloſs of a reddiſh blue: but is an exceedingly brilliant dark purple, while the creature is alive; and the yellow belts on the alternate diviſions of the body, glitter in the ſunſhine with the effulgence of molten gold. The legs are yet more beautiful, as the purple, though paler, is of a livelier luſtre; and every joint is deeply fringed with the ſame golden colour as that on the body.

The wings, which are perfectly tranſparent, except at the apex, are delicately veined, and ribbed with black lines. The fan tail is expanded or contracted at pleaſure.

If the creature burſts from it's chryſalis in the morning, it is generally obſerved ſporting among the leaves of the neareſt plants about noon; and this is commonly the time the male is ſeen ſeeking its mate.

It's very ſingular appearance before the opaque microſcope, induced us to give the magnified figure, together with the Caterpillar, Chryſalis, and Sphinx, of the natural ſize.

PLATE LIII.

SPHINX TIPULIFORMIS.

Currant Sphinx.

Caterpillar, Chrysalis, [illegible]

The Female deposits her eggs in the [illegible] [illegible]

It changes to a Chrysalis [illegible]

A short time [illegible] [illegible]

The [illegible] [illegible] The Female [illegible]

PLATE LIII.

SPHINX TIPULIFORMIS.

CURRANT SPHINX.

CATERPILLAR, CHRYSALIS, and SPHINX of the Natural Size.

The Female depoſits her eggs in the crevices of ſuch twigs as are hollow; and a peculiar inſtinct almoſt invariably directs her to the ſtalks of the currant trees: which are not only eaſy of acceſs, but afford grateful nouriſhment to the young brood. Immediately that the Caterpillar is enlarged from the egg, it perforates the ſtalk, and, having entire poſſeſſion of the inner channel, it feeds on the ſoft ſubſtance which is abundant within. Thus it is ſecured by nature, with a defence againſt many depredators, to which all Caterpillars, except internal feeders, are expoſed.

It changes to a Chryſalis within the ſtalk.

A ſhort time before the Inſect burſts forth, the Chryſalis is protruded through the outer bark, preciſely in the ſame manner as the Chryſalis of the *Sp. Apiformis* (PLATE 25.); and is ſupported by a ſimilar contrivance, every ſegment being ſerrated, or armed, with a row of very minute teeth, which firmly embrace the ſubſtance of the ſtalk, and elevate the Chryſalis in an oblique poſture; until the laſt efforts of the Inſect completely diſengages it from the caſe.

The *Sp. Tipuliformis* is the only Species of the tranſparent-winged Hawk-Moths, which is common near London; and is the ſmalleſt Inſect of this diviſion of the *genus:* the diviſion contains few individual ſpecies: but ſuch as are generally very rare; at leaſt the broods appear local in this country. The Currant Sphinx is taken in June.

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PLATE LIV.

PLATE LIV.

CICADA.

HEMIPTERA.

Shells, or upper wings, ſemi-cruſtaceous, not divided by a ſtraight ſuture, but incumbent on each other. Beak curved downward.

GENERIC CHARACTER.

Antennæ taper. Shells membraneous. In each foot three joints. Hind legs ſtrong for leaping.

FIG. I.

CICADA SANGUINOLENTA,

* * *

SPECIFIC CHARACTER.

Black. Three red ſpots on each ſhell.

Syſt. Ent. 688. 2.—*Linn. Syſt. Nat.* 2. 708. 22.
Geoff. Inſ. 1. 418. *Tab.* 8. *Fig.* 5.
Naturf. 6. *Tab.* 2.
Scop. carn. 330.
Fueſly. Inſ. Helv. 24. 456.

CERCOPIS *Sanguinolenta. Fab. Spec. Inſ. t.* 2. 329.

The moſt beautiful of the *Cicadæ* which inhabit this country; and rare with us, though common to many parts of Europe. It is peculiar to the chalky and ſandy ſoils of Dartford, and ſome more diſtant places. It is taken in June and July.

FIG.

FIG. II.

CICADA SPUMARIA.

Cuckow-spit Insect, or Froth Worm.

SPECIFIC CHARACTER.

Brown. Beneath lighter. Shells with two imperfect white belts, or long tranſverſe ſpots, inferior wings pale.

Syſt. Ent. 688. 5.—*Linn. Syſt. Nat.* 2. 708. 24. *Fn. Sv.* 881.

Cicada fuſca, faſcia duplici albida interrupta tranſverſa.—*Geoff. Inſ.* 1. 415. 2.

Cicada Spumaria Graminis fuſca, alis ſuperioribus maculis albis.—*Degeer Inſ.* 3. 163. 1. *Tab.* 11. *Fig.* 1—21.

Locuſta pulex Swammerdamii, nobis Cicadula.—*Raj. Inſ.* 67.

Ranatra bicolor, capite nigricante.——*Petiv. Gazoph. Tab.* 61. *Fig.* 9.

Cicada fuſca alis ſuperioribus maculis albis, in ſpuma quadam vivens.—*Degeer Acta Holm.* 1741. 221.

Vermes ſpumans.—*Friſch. Inſ.* 8. 26. *Tab.* 12.

Locuſta germanica.—*Roeſ. Inſ.* 2.—*Gryll. Tab.* 23.

Sulz. Inſ. Tab. 1c. *Fig.* 64.

Schaeff. Elem. Tab. 42.

Fueſly. Inſ. Helv. 450.

Cercopis *ſpumaria.*—*Fab. Spec. Inſ. tom* 2. 329.

Cicadia

Cicada Spumaria is not only common in this country, but is abundant in every part of Europe. It frequents moſt plants, but thoſe eſpecially which exhale much moiſture. The food of the Larva appears entirely of the vegetable kind, and conſiſts, for the moſt part, of the ſuperabundant fluids which all plants tranſpire.

" The CUCKOW-SPIT, or FROTH-WORM, is often found hid in that frothy matter which we find on the ſurface of plants. It has an oblong, obtuſe body; and a large head, with ſmall eyes. The external Wings, for it hath four, are of a duſky brown colour, marked with two white ſpots: the head is black. The ſpume in which it is found wallowing, is all of its own formation, and very much reſembles frothy ſpittle. It proceeds from the vent of the animal, and other parts of the body; and, if it be wiped away, a new quantity will be quickly ſeen ejected from the little animal's body. Within this ſpume, it is ſeen in time to acquire four tubercles on its back, wherein the wings are encloſed: theſe burſting, from a reptile it becomes a winged animal."

The colour of the winged Inſect is found to vary from a deep chocolate, to a very pale brown. It is taken in July and Auguſt.

It rarely uſes its wings for flight, as the hind legs are formed for leaping; at one effort it will frequently bound to the diſtance of two or three yards.

FIG.

FIG. III.

CICADA VIRIDIS.

* * *

SPECIFIC CHARACTER.

Head yellow, with two black ſpots. On the target two black dots. Superior Wings green, with a yellowiſh border. Inferior Wings pale. Body blue. Legs yellowiſh.

Syſt. Ent. 2. 685. 21.—*Linn. Syſt. Nat.* 2. 711. 46. *Fn. Sv.* 896.

Locuſta pulex paullo minor.—*Raj. Inſ.* 68. 3.

Ranatra virideſcens. — *Petiv. Gazoph.* 73. *Tab.* 76. *Fig.* 6. — *Geoff. Inſ.* 1. 417. 5.
Fueſly. Inſ. Helv. 24. 465.

CICADA *Viridis.*—*Fab. Spec. Inſ. t.* 2. 326.

A ſpecies not uncommon, but leſs plentiful than the *C. Spumaria.* It is found in July and Auguſt, on aquatic plants; generally on the high ruſhes which abound in marſhy places.

PLATE LV.

PAPILIO URTICÆ.

SMALL TORTOISESHELL BUTTERFLY.

LEPIDOPTERA.

GENERIC CHARACTER.

Antennæ clavated. Wings, when at rest, erect. Fly by day.

SPECIFIC CHARACTER

[illegible]

[illegible]

Papilio [illegible]

[illegible] 115. [illegible]

Albert. [illegible] Tab. [illegible]

[illegible] Fig. [illegible]

Merian. Europ. [illegible] *Tab.* [illegible]

[illegible]

[illegible]

[illegible]

——— [illegible]

PLATE LV.

PAPILIO URTICÆ.

Small Tortoise-shell Butterfly.

Lepidoptera.

GENERIC CHARACTER.

Antennæ clavated. Wings, when at reſt, erect. Fly by day.

SPECIFIC CHARACTER.

Deep orange. Wings conſiderably indented. Above, on the ſuperior Wings, ſix black and two whitiſh ſpots. Inferior Wings, one large ſpot on each. A broad exterior black border, edged with black and yellow, and a row of light blue ſpots on each Wing. Underſide, black-brown with waves and daſhes of yellow, brown, &c.

Syſt. Ent. 505. 263.—*Linn. Syſt. Nat.* 2. 777. 167.
—*Fn. Sv.* 1058.—*Geoff. Inſ.* 2. 37. 4.

Papilio urticaria vulgatiſſima, rufo nigro cœruleo et albo coloribus varia. *Raj. Inſ.* 117. 1.
Robert. Icon. Tab. 5.
Huffn. Pict. 2. *Fig.* 16.
Merian. Europ. 44. *Tab.* 44.
Albin. Inſ. Tab. 4. *Fig.* 51.
Schaeff. Icon. Tab. 142. *Fig.* 1. 2.
Goed. Inſ. 3. *Tab.* 3.
——————— *&c. &c.*

A very beautiful ſpecies of the *Papilio*; and, were it leſs frequent, would be infinitely eſteemed for the elegant combination of its colours; but is at preſent little regarded. The old Flies are obſerved in May, the Caterpillars are hatched about the middle of June; in July they are full fed, and caſt their laſt exuviæ: they transform into Chryſalis, in which ſtate they remain only fifteen days, and then burſt forth a Papilio.

They continue to breed in vaſt quantities during the warm weather; and have, if the ſeaſon be favourable, ſeveral broods before the winter.

The Chryſalis is brown, but often aſſumes much of a golden hue; and, though not its common appearance, is ſometimes ſeen entirely of a rich gilded, or gold colour; but this is unnatural, and generally indicates that the Caterpillar has been ſtung by the Ichneumon Fly. The Caterpillars are taken on the Nettle *.

* *Urtica Dioica. Linn.*

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PLATE LII.

FIG. I.

[illegible]

[illegible]

[illegible]

[illegible]

It is very abundant in England in July.

[illegible]

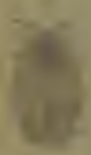

PLATE LVI.

FIG. I.

PYROCHROA COCCINEA *.

SPECIFIC CHARACTER.

Beneath, Legs and Antennæ black. Head, Thorax and Shells bright red, inclining to brown.

The above Inſect which *Fabricius* has, after that celebrated French Naturaliſt Geoffroy, made a new genus, under the title *Pyrochroa* *, has in general been conſidered by the Collectors of Inſects as the *Cantharis Sanguinolentæ* of Linnæus; but this cannot be the caſe, as the deſcriptions by no means correſponds; nor is it the *Lampyris Coccinea* of that author, as quoted by Fabricius; we are therefore inclined to think, that notwithſtanding it is ſo plenty with us, it was unknown to the Swediſh Naturaliſt at the time he wrote; eſpecially as the ſpecimen was not contained in his cabinet.

It is very common in England, in Jnly.

* *Geoff. Inſ.* 1. 388. 1. *tab.* 6. *fig.* 4.

PLATE LVI.

FIG. II.

SILPHA QUADRIPUNCTATA.

COLEOPTERA.

GENERIC CHARACTER.

Antennæ clavated, foliated. Head prominent. Thorax margined.

SPECIFIC CHARACTER.

Head, Antennæ, and Legs black. Thorax yellow, with a large ſpot of black. Shells yellow, with four ſmall black ſpots. Length half an inch.

Appears local to certain parts of this kingdom: is ſometimes taken by beating the Oaks in Caen-wood, near Hampſtead, in July; it is, however, rare.

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PLATE LVII.

FIG. I.

PHALÆNA LAMBDELLA.

TINEA.

SPECIFIC CHARACTER.

[illegible]

[illegible]

[illegible]

FIG. 2.

PHALÆNA AURATA.

PYRALIS*.

SPECIFIC CHARACTER.

[illegible]

[illegible]

* Fab. Gen. [illegible]

PLATE LVII.

FIG. I.

PHALÆNA LAMDELLA.

TINEA.

SPECIFIC CHARACTER.

Superior Wings bright yellow brown, with a triangular dark ſpot, extended obliquely from the inferior margin, to the center of the Wing, and terminated by a minute detached ſpot of the ſame colour.

A non-deſcript, and has hitherto only been taken on Epping-foreſt: the brood was diſcovered in a furze-buſh, by Mr. Bentley, an eminent Collector of Inſects, in July 1789; the Cabinets of ſeveral Naturaliſts have been ſupplied from the parcel then taken, as the Species has rarely been obſerved ſince.

We prefer the name *Lamdella*, as the form of the Greek *Lamda* (λ) is well characterized, on the ſuperior Wings.

FIG. II.

PHALÆNA AURANA.

PYRALIS*.

SPECIFIC CHARACTER.

Superior Wings brown, with two orange ſpots on each; inferior Wings brown.

Syſt. Ent. 653. 48.—*Fabri. Spec. Inſ.* II. 286. 66.

* *Fab. Gen. Inſ.*

An

An elegant Species of the minuter kinds of Lepidopterous Inſects: it derives its name from the ſpots of bright orange, or gold colour, which are on the ſuperior wings: is very rare: our ſpecimen was taken in Kent, late in July; it appears peculiar to that county only, or is certainly very unfrequently, if ever, found elſewhere.

Larva unknown.

FIG. III.

PHALÆNA APICELLA.

TINEA.

SPECIFIC CHARACTER.

Grey. A circular ſpot of gold, or orange colour, at the apex of each ſuperior Wing.

Non-deſcript, and is alſo very rare. Our ſpecimen was procured by beating a White thorn-buſh, on Epping-foreſt, early in May.

The orange ſpot on the ends of the upper wings afford the moſt ſtriking diſtinction for a Specific Character; we therefore denominate it Apicella.

WISHING to compriſe ſuch information as may recommend our Work, to a general Claſs of Readers, we are abſolutely compelled to deviate from that uniform path which we at firſt intended to purſue; by introducing the figures of ſome Moths before we can procure their larva; we promiſe this will rarely occur, except with Inſects whoſe larva are unknown; and the Author will ſpare no expence, or trouble, to attain even thoſe: but, were he to refuſe a place to the many valuable ſpecimens recently diſcovered, it would be very diſpleaſing to the greater part of his Subſcribers; therefore, as an invariable obſervance of ſuch intention, promiſes only to exclude the moſt rare of our Inſects, we cannot always indulge it: on this plan, in the firſt Volume we could neither have repreſented the Phal. Batis, *Peach Bloſſom*, as the larva has only once been found; or the Phal. Chriſternana, whoſe larva is unknown*: Theſe are Inſects which few Cabinets in England poſſeſs; hence the figures muſt be very acceptable, and their rarity a ſufficient apology for their premature introduction.

* The Caterpillars of a very ſmall portion of minute Moths are known; and many Species in the adult ſtate are ſo very rare, as to have eſcaped the attention of the moſt accurate Entymologiſts. Of the number which are aſcertained as natives, very few are hitherto figured, or even deſcribed.

PLATE

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PLATE LVIII.

FIG. I. I.

PHALÆNA PRUNIELLA.

LEPIDOPTERA.

GENERIC CHARACTER.

PHALÆNA.

[illegible] taper from the base. Wings, in general, convolute[illegible] [illegible]. Fly by night.

[illegible]

SPECIFIC CHARACTER.

[illegible] [illegible] a broad white stripe [illegible] the [illegible] [illegible] [illegible] of the wings, but is [illegible] into the [illegible] by a [illegible] spot of dark brown. [illegible] wings [illegible]. [illegible] and [illegible] [illegible] grey.

[illegible] have applied the name Pruniella, from that [illegible] [illegible] [illegible] [illegible], said to be executed under the immediate inspection of [illegible] [illegible] [illegible] has figured it in the [illegible] Plate, Fig. 4. [illegible] [illegible] [illegible] of that work, [illegible] [illegible] [illegible] [illegible] in this country, [illegible] [illegible] [illegible] [illegible] [illegible] to be [illegible] [illegible] [illegible] [illegible] [illegible] as it does not [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible], perhaps [illegible] [illegible] [illegible] [illegible] [illegible] [illegible], which [illegible] [illegible] [illegible] [illegible] with [illegible], but we cannot find that he [illegible] [illegible] [illegible] [illegible] [illegible] in any part of his works [illegible]

[illegible] [illegible] [illegible]

PLATE LVIII.

FIG. I. I.

PHALÆNA PRUNIELLA.

LEPIDOPTERA.

GENERIC CHARACTER.

PHALÆNA.

Antennæ taper from the baſe. Wings, in general, contracted when at reſt. Fly by night.

TINEA.

SPECIFIC CHARACTER.

Superior wings brown, inclining to purple; from the interior margin is extended a broad white daſh along the poſterior margin, nearly two thirds of its length; but is interrupted near the extremity by a ſquare ſpot of dark brown. Inferior wings grey. Head and thorax white. Abdomen grey.

We have copied the name *Pruniella*, from that celebrated work of Clerk, ſaid to be executed under the immediate inſpection of *Linnæus* himſelf: He has figured it in the 11th Plate, Fig. 4. But the great ſcarcity of that work, there not being twelve copies in this country, can have contributed in a very ſmall meaſure to its being generally known; which indeed is the fact, as it does not appear any writer ſince that time has figured, or even deſcribed it. Some were, perhaps, ignorant of its having been figured in Clerk's Plates, which however, could not have been the caſe with *Linnæus*; but we cannot find that he has deſcribed it, or referred to Clerk's figure in any part of his works;

though a copy of that book came over with the Linnæan collection, into the hands of Dr. Smith; nor can we trace any deſcription of this moth in the writings of *Fabricius*; he alſo has not quoted the figure: We may hence conclude that although the inſect is frequent in the months of June and July, it is little known, except with thoſe who poſſeſs collections; and even many of that deſcription are perhaps unacquainted with the circumſtance of its having been named by Clerk, and probably by no other author.

Taken at Highgate.

FIG. II.

PHALÆNA MARGINELLA.

LEPIDOPTERA.

GENERIC CHARACTER.

PHALÆNA.

TINEA.

SPECIFIC CHARACTER.

Firſt wings bright, pale brown, with a broad white margin. Second wings white.

Our preſent ſpecies was unknown to *Linnæus*; but according to his definition of *genera*, is one of the *tineæ*; it will be neceſſary, however, to diſtinguiſh it from the *tinea marginella* of Fabricius, which is a native of Germany, and altogether different; that writer, it is well known, divided many of the genera of Linnæus, and from their materials conſtituted an infinitely greater number; it was by ſuch diviſions he ſeparated the *tineæ*, into the genera, *tineæ* and *alu-*

citæ, removing the *alucitæ* * of Linnæus under the title of *Pterophorus*.

He therefore uſes the ſpecific name *marginella* to his *tinea* and *alucita*. Our ſpecimen is deſcribed by him, under the name *Alucita marginella*. It is found on the juniper in May.

Taken at Dartford.

FIG. III.

PHALÆNA PAVONANA.

LEPIDOPTERA.

GENERIC CHARACTER.

PHALÆNA.

TORTRIX.

SPECIFIC CHARACTER.

Superior wings clouded with black and buff-coloured markings, and a very minute repreſentation of a peacock's feather at the apex. A dorſal ſpot of bright brown, ſurrounded with a deep black mark. Inferior wings grey brown, with the eye of the peacock's feather at the apex.

This ſingular Tortrix, which abounds with beautiful markings, is particularly diſtinguiſhed by the elegantly little mark at the apex of the upper wings, which appears like the feather of a peacock's tail:

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* The inſects diſtinguiſhed by this title are known by the trivial names *Plumes*, or *Fans*; their wings being entirely formed of feathers connected only near the baſe in the manner of a fan.

the ferruginous dorſal ſpot, ſurrounded with a thick black mark, although pretty, is by no means peculiar to this ſpecies, being common to ſeveral other minute moths: the clouded markings of black and buff-colour, interſperſed with ſilver, give this little animal a beautiful appearance, particularly under the microſcope. The under wings have a ſimilar appearance of a peacock's feather, but more obſolete at the apex.

We believe this ſpecies has never been deſcribed before, and very rarely taken. Our ſpecimen was found in Suſſex.—Auguſt.


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PLATE CIX.

FIG. I.

PHALÆNA [illegible]

[illegible]

FIG. II.

PHALÆNA PRUNIELLA.

[illegible]

[illegible]

PLATE LIX.

FIG. I.

PHALÆNA PAVONANA

MAGNIFIED.

FIG. II.

PHALÆNA PRUNIELLA

MAGNIFIED.

We cannot ſelect more pleaſing objects for microſcopical inveſtigation, than thoſe two minute moths, eſpecially the firſt; the markings appear rather confuſed without the aſſiſtance of glaſſes, but a lens of a very ſmall power completely developes it of this imaginary obſcurity, and diſplays an elegance ſufficient to recommend it to our attention; but independent of ſuch conſideration, it will, it is preſumed, be conſidered as a material advantage to the deſcription annexed, to accompany the figure of the natural ſize with a microſcopical repreſentation; not to enforce that ſuch addition is indiſpenſibly neceſſary, but when moths like the preſent offer, whoſe marks, though beautiful, appear confuſed, it will certainly much aſſiſt to its neceſſary information; as well as in future to determine the ſpecies itſelf.

PLATE [illegible]

[illegible]

[illegible]

GENERAL CHARACTER.

[illegible]

[illegible]

SPECIFIC CHARACTER.

[illegible]

[illegible]

[illegible]

[illegible]

PLATE LX.

CURCULIO SCROPHULARIÆ.

COLEOPTERA.

GENERIC CHARACTER.

Antennæ elbowed in the middle, and fixed in the ſnout, which is prominent and hairy. Joints in each foot four.

*** *Long ſnout. Thighs dentated.*

SPECIFIC CHARACTER.

Somewhat ſpherical. Thorax narrow, beſet with yellow-white hairs. Shells black brown, ſtriated; a large black ſpot on the ſuture, on each ſide of which are two ſmall ſpots. Length three lines.

Syſt. Ent. 140. 68.—*Linn. Syſt. Nat.* 2. 614. 61.
—*Fn. Sv.* 603.

Geoff. Inſ. 1. 296. 44.
Degeer Inſ. 5. 208. 3. *Tab.* 6. *Fig.* 17. 18. 19. 20.
Liſt. Scarab. Angl. 395. 35.
Reaum. Inſ. 3. *Tab.* 2. *Fig.* 12.

This ſingular little inſect feeds, when in the larva ſtate, on plants of the *ſcrophularia* genus, (fig-wort), and thence receives its ſpecific name. The beetle is not uncommon in June, and is uſually found on the ſame plants as the larva: the minuteneſs of this creature evades a complete diſcovery of the uncommonly teſſelated appearance it aſſumes before the ſpeculum of an opake microſcope; our plate repreſents the chryſalis and beetle, natural ſize, together with a conſiderably magnified figure of the latter.

PLATE LXI.

PHALÆNA [illegible]

[illegible]

GENERAL CHARACTER.

Antennæ taper from the base. Wings [illegible] when at rest. Fly by night.

BOMBYX.

SPECIFIC CHARACTER.

[illegible]

[illegible]

PLATE LXI.

PHALÆNA STRAMINEA.

LEPIDOPTERA.

GENERIC CHARACTER.

Antennæ taper from the baſe. Wings, in general, contracted when at reſt. Fly by night.

NOCTUA.

SPECIFIC CHARACTER.

Antennæ and tongue deep yellow. Head and thorax covered with long hairs; which, with the ſuperior wings, are pale yellow, or bright clay colour; in the middle of the ſuperior wing is a kidney-ſhaped ſpot of dull grey, encloſed by a dark reddiſh brown line, which is united to the anterior margin by another ſpot of the ſame colour. Near the exterior margin is a broad obſolete band of pale brown, but where it touches the anterior margin it is darker; within this band are nine white ſpots, or points, and between the band and exterior margin of the wing, on the lower edge, is a bright black point; there are ſeveral other reddiſh brown points ſcattered upon the upper wing, near the baſe. The inferior wings are of a yellowiſh-white, with a ſhade of purple, a dark ſpot on the middle, and a pale black, broad border, with a white fringe.

This elegant ſpecies of the *Noctua* diviſion of Moths, appears to be not only a nondeſcript, but altogether unknown before; even to the beſt practical entymologiſts: That an inſect of ſuch magnitude ſhould have been unnoticed by *Linnæus*, or *Fabricius*, is not very ſingular, as ſeveral nondeſcripts of a ſimilar, and many of an inferior,

ſize, are to be ſeen in almoſt every cabinet; but that the ſpecies ſhould have eſcaped the reſearches of the moſt eminent collectors, is rather aſtoniſhing.

We have ſought every information which our connection would permit; and from the reſult we ſcarcely heſitate to pronounce the inſect of a nondeſcript ſpecies, and our ſpecimen to be perfectly unique; at leaſt it is a newly-diſcovered acquiſition to many ſcientific entymologiſts.

The original, whence the figure has been copied, is in the collection of the author; it was taken in a lane leading immediately from the wood at *Tottenham*, the laſt week in June, 1793. It was diſcovered in the evening, on a blade of graſs; and, from its wet appearance, as well as exquiſite preſervation, it had certainly juſt emerged from its chryſalis.

The Caterpillar may be ſuppoſed to be an underground feeder, and to ſubſiſt on the roots of graſs, &c. or one of that kind which comes only above the ſurface of the earth in the night.

PLATE LXII.

PLATE LXII.

MUSCA ONOPORDINIS?

DIPTERA.

Wings two.

GENERIC CHARACTER.

A ſoft flexible trunk, with lateral lips at the end. No palpi.

SPECIFIC CHARACTER.

Head, thorax, and body, yellow brown. Wings, variegated with brown ſpots.

Syſt. Ent. 787. 80.
Fabric. Spec. Inſ. 2. 455. 105.

Whether this is the Muſca *Onopordinis* of Linnæus, as quoted, we cannot exactly determine; it anſwers to his deſcription of that inſect, but he ſpeaks ſo very conciſely, that we will not venture to aſſure ourſelves of his M. *Onopordinis* being our ſpecies. In this and many other inſtances we find, that though brevity is the greateſt excellence of the Linnæan deſcriptions, it is alſo their moſt eſſential fault.

The ſpecies may, with much propriety, ſtand under the name *Onopordinis*, as we believe it has never been figured before; and, ſhould the Linnæan ſpecies be hereafter diſcovered to differ from the preſent, a new name may be readily given to that inſect.

Flies in April and May, and is very common in the ſummer, in woods.

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PLATE LXIII.

FIG. I.

SILPHA THORACICA.

COLEOPTERA.

GENERIC CHARACTER.

[illegible]

SPECIFIC CHARACTER.

Black. Three longitudinal lines on each shell. [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

PLATE LXIII.

FIG. I.

SILPHA THORACICA.

COLEOPTERA.

GENERIC CHARACTER.

Antennæ clavated, foliated. Head prominent. Thorax margined.

SPECIFIC CHARACTER.

Black. Three longitudinal lines on each ſhell. Thorax red-brown.

Syſt. Ent. 73. 6.—*Linn. Syſt. Nat.* 2. 571. 13.—*Fn. Sv.* 452.—*Stroem. Act. Nidroſ.* 3. *Tab.* 6. *Fig.* 1.

Silpha. Degeer Inſ. 4. 174. 3. *Tab.* 6. *Fig.* 7.

Peltis nigra, *&c.*—*Geoff. Inſ.* 1. 121. 6.

Scarabæus.—*Raj. Inſ.* 90. 10.

Caſida nigra, *&c.*—*Gadd. Satag.* 25.

Silpha Thoracea. Scop. carn. 54.

Bergſtr. Nomencl. 1. 23. 5. *Tab.* 3. *Fig.* 5.

Schaeff. Icon. Tab. 75. *Fig.* 4.

Sulz. Inſ. Tab. 2. *Fig.* 12.

Taken at Charlton in June. It is a very rare ſpecies in every part of this country, though not unfrequent in Germany.

FIG.

FIG. II. III.

CASSIDA CRUENTATA.

COLEOPTERA.

GENERIC CHARACTER.

Antennæ knotted, enlarging towards the ends. Shells and thorax bordered. Head concealed under the corſelet.

SPECIFIC CHARACTER.

Bright green above, on each ſhell near the ſcutellum a very bright ſanguineous mark. Beneath, body and thighs black. Legs and feet light brown.

Is found on verticillated plants and thiſtles in May.

Although confounded by ſome with the common Caſſida (*C. Viridis*), it differs very eſſentially from that inſect: it is ſmaller; of a deeper green colour, and does not fade to a dirty brown after death: but the bright ſanguineous marks on the ſhells are ſcarcely viſible in a dead ſpecimen; the former is very common in May, but our ſpecies is rare.

C. Cruentata has never been either deſcribed or figured before.

FIG.

FIG. IV.

SILPHA OBSCURA.

COLEOPTERA.

SILPHA.

SPECIFIC CHARACTER.

Entirely black. She'ls punctured; with three longitudinal lines on each.

Syſt. Ent. 74. 11.—*Linn. Syſt. Nat.* 2. 572. 18.
—*Fn. Sv.* 457.—*Scop. carn.* 57.
CASSIDA. *Udm. Diſſ.* 8.

Very frequent in May: breeds in corn-fields and meadows; but is found in many other ſituations.


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PLATE LXIV.

FIG. I.

CERAMBYX VIOLACEUS.

COLEOPTERA.

GENERIC CHARACTER.

Antennæ articulated, and tapering to the end. Shells long and narrow. Four joints in each foot. Thorax with lateral ſpines, or tubercles.

SPECIFIC CHARACTER.

Head, thorax, and ſhells, blue-purple. Legs, and underſide black.

Linn. Syſt. Nat. 2. 635. 70.—*Fn. Sv.* 667.
Degeer Inſ. 5. 88. 24.
Stenocorus violaceus. *Scopol. Ann. Hiſt. Nat.* 597. 59.
Cantharis, &c. *Gadd. Diſs.* 28.
Friſch. Inſ. 12. *Tab.* 3.
Callidium violaceum. *Fab. Spec. Inſ.* 1. 237. 5.

Is exceedingly rare in England. Our ſpecimens were taken on Epping Foreſt in June.

It is ſuſpected that this ſpecies, although now taken in England, was not originally a native, but by accident has been introduced into this country, from Germany, or ſome other part of Europe.

An ingenious collector * informs us, that thoſe taken at Epping are generally found exactly in the ſame place, and it is worthy a remark, on the ſame ſpot there are three poſts of foreign fir, which evidently

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* Mr. Bentley.

harbour a quantity of Larvæ; probably of this insect, though not yet determined.

Has been taken in different parts of the kingdom, and appears to be naturalized with us at this time.

FIG. II. III.

CERAMBYX HISPIDUS.

COLEOPTERA.

CERAMBYX.

SPECIFIC CHARACTER.

Head and thorax spined, brown. Shells, upper half white with cinereous clouds; lower, brown, with longitudinal ridges, and three strong spines on each, next the suture. Antennæ longer than the body, black and white alternately.

Linn. Syst. Nat. 2. 627. 30.—*Fn. Sv.* 651.
Geoff. Inf. 1. 206. 9.—*Fab. Spec. Inf.* 1. 215. 27.
Cerambyx fasciculatus. *Degeer Inf.* 5. 71. 9. *Tab.* 3. *Fig.* 17.
Scarabæus. Antennis articulatis longis. *Raj. Inf.* 97. 4.
Schaeff. Icon. Tab. 14. *Fig.* 9.
Frisch. Inf. 13. *p.* 22. *Tab.* 16.

One of the most beautiful of our Coleopterous Insects, and is common in certain situations during most part of the summer.

Fig. II. represents it of the natural size. Fig. III. magnified.

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PLATE LXV.

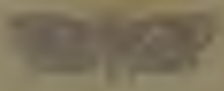

PLATE LXV.

FIG. I.

PHALÆNA INTERROGATIONANA.

LEPIDOPTERA.

GENERIC CHARACTER.

Antennæ taper from the baſe. Wings in general contracted when at reſt. Fly by night.

TORTRIX.

SPECIFIC CHARACTER.

Superior wings dark red-brown with an undulated line reſembling the note of interrogation on each. Inferior wings and body pale brown.

Is very rare, and has only been hitherto taken in the wilds of Kent, and ſome other diſtant parts of the country; our ſpecimen was taken in Auguſt.

An inſect ſo ſingularly marked, cannot readily be confounded with any other ſpecies, as we do not poſſeſs one which bears much reſemblance to it; the moſt ſtriking particular for a ſpecific diſtinction are the two waved lines of white on the ſuperior wings, which being contraſted with the brown colour, gives it a very unuſual appearance.

It is an undeſcribed inſect, and we have called it Phalæna Interrogationana, as the white undulated mark, if viewed ſideways, reſembles a note of interrogation.

FIG. II. III.

PHALÆNA SEMI-ARGENTELLA.

LEPIDOPTERA.

TINEA.

SPECIFIC CHARACTER.

Superior wings gold, with ſtripes of ſilver, inferior wings grey-brown.

Fig. II. natural ſize. Fig. III. magnified appearance.

Pha. Semi-argentella is without exception one of the moſt brilliant little moths we have; the natural ſize is ſcarcely ſufficient to diſplay its ſuperior elegance, but when examined by the microſcope, imagination cannot paint a more reſplendent object, for we inſtantly diſcover a moſt wonderful combination of all the varied ſhades of molten ſilver and burniſhed gold; its ſuperior wings are entirely adorned with plates which exhibit in one view the appearance of thoſe coſtly metals, but vary with every direction of light; that which appears gold in one point of ſight becoming red, or bright orange, while the ſhades which were before of a dark brown, aſſumes the reſplendence of burniſhed gold; the thorax glitters with the ſame ſplendor; the head, antennæ, and even the legs, partake alſo of this rich colouring in ſome changes of light; the inferior wings are of a very delicate texture, grey colour, changeable, and though comparatively ſmall, are ſurrounded by a deep fringe, which gives them the appearance of proportion.

We are unacquainted with the works of any author that contain a figure of this inſect, or we might perhaps be enabled to determine whether

whether it is not the *Pha. T. Seppella** of Fabricius; the deſcriptions nearly correſpond, but we are unwilling, without other proof, to give it that ſpecific name.

Until very lately it was conſidered as an exceedingly rare inſect, but ſeveral ſpecimens were taken at Highgate laſt ſummer.

FIG. IV.

PHALÆNA CURTISELLA.

LEPIDOPTERA.

TINEA.

SPECIFIC CHARACTER.

Superior wings, and thorax white, ſpeckled, and ſpotted with brown. Inferior wings and body pale brown.

This inſect is very uncommon, and though it has never been either figured or deſcribed before, it has been arranged in thoſe cabinets which poſſeſſed the ſpecimen, under the ſpecific name *Curtiſella*, after Mr. CURTIS, author of the *Flora Londinenſis*, &c.

The name was originally inſerted by Mr. MARSHAM, in his manuſcripts, and was intended as a compliment to the abilities of that ſcientific gentleman; it has not hitherto appeared in public, but we can feel no reluctance to adopt the ſame name.

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* Alis auratis, ſtrigis duabus argenteis. *Gen. Inſ. Mant.* 296.

PLATE LXVI.

BOMBYLIUS MAJOR.

HUMBLE-BEE FLY.

DIPTERA.

Wings two.

GENERIC CHARACTER.

Trunk taper, very long, ſharp, between two horizontal valves.

SPECIFIC CHARACTER.

Body ſhort, thick, covered with thick yellowiſh down. Wings dark brown next the anterior margin; tranſparent next the poſterior margin. Legs long, ſlender, black.

Linn. Syſt. Nat. 2. 1009. 1.—*Fn. Sv.* 1918.

Bombylius variegatus, &c.

Degeer. Inſ. 6. 268. 1. *Tab.* 15. *Fig.* 10.

Aſilus, &c. *Geoff. Inſ.* 2. 466. 1.

Reaum. Inſ. 4. *Tab.* 8. *Fig.* 11, 12, 13.

Mouff. Inſ. 64. *Fig.* 5.

Scop. Carn. 1018.

Raj. Inſ. 273.

Schaeff. Icon. Tab. 79. *Fig.* 5.

Huffnag. Inſ. Tab. 8. *Fig.* 1.

Aldr. Inſ. 350. *f.* 10.

We

We have only three ſpecies of this genus in England, *Major*, *Medius*, and *Minor*.

B. Major is not very rare, its uſual time of appearance is June and July.

Together with other ſpecies of the Bombylius genus, it is ſometimes called the Sword-Bee-Fly: this appellation it receives from the ſingular form of its trunk; to aſſiſt our deſcription, we have repreſented its appearance when magnified, at Fig. I.

It hovers from flower to flower, when the warmth of the ſun invites it abroad, and extracts the nectar from flowers, by darting its proboſcis into them, but never reſts while feeding.

PLATE LXVII.

MELOE VARIEGATUS.

Scarce Meloe.

Coleoptera.

GENERIC CHARACTER.

Antennæ globular, the laſt globule oval. Thorax roundiſh. Shells ſoft. Head gibbous, and bent downwards.

SPECIFIC CHARACTER.

Head and thorax dull green, margined with red. Shells ſhort, dull green ſhagreened. Body large; above variegated with red, green, and copper colour: beneath purple. Legs reddiſh purple.

In form and ſize this ſpecies is not unlike the common Meloe *; but is far ſuperior to that Inſect, for the beauty of its colours: when the creature is alive the upper part of the body partakes of the moſt vivid colours, but thoſe colours become more obſcure after the Inſect dies;—this difference of the appearance, between the living and dead ſpecimen of the ſame ſpecies, is not peculiar to this Inſect only, but is commonly obſerved of moſt other kinds. The body is large in proportion to the other parts, but after death it is ſo contracted, or diſtorted from its natural ſhape, as to aſſume the appearance of an incoherent maſs; the ſkin ſo corrugated as to receive a falſe light on different parts of the ſurface, and conſequently the natural glow of

* M. Proſcarabæus.

the colours conſiderably decreaſed by the exhalation of that moiſture which ſerved to refreſh them in the living ſtate.

The underſide, from the greater tenacity of the ſkin, or ſhelly ſubſtance, is leſs liable to alteration than the upper ſide; it is entirely of a dark, but beautiful purple, which is changeable in proportion to the convexity of the body, to the moſt brilliant hues; the legs are alſo of a beautiful purple, with the appearance of bronze or copper colour intermixed.

It does not appear to be frequent in any part of Europe; even in Germany it is rarely, if ever taken: as one of the *Britiſh Coleopteræ* it is very little known, and is perhaps confined to the diſtant parts of Kent, where it is not generally diffuſed, but is found local to certain ſituations.

Mr. Crow, of Feverſham, very fortunately met with a brood of them laſt ſeaſon, and tranſmitted ſeveral ſpecimens to his friends in London. They varied conſiderably in ſeveral reſpects, and particularly in their colours; ſome appearing much more beautiful than others.

The male is ſmaller than the female; they ſecrete themſelves beneath the ſurface of the earth, and ſubſiſt on the roots of graſs, or herbage in general: are ſometimes found by turning up the mould, or may be obſerved crawling among the graſs. Come forth in April, or May.

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PLATE LXVIII.

FIG. I. II.

DYTISCUS MINUTUS.

COLEOPTERA.

GENERIC CHARACTER.

Antennæ taper, or clavato perfoliated. Feet villous and broad.

SPECIFIC CHARACTER.

Yellow-brown, Shells ſtriated, and marked with ſhort longitudinal ſtripes of black.

Fabri. Spec. Inſ. 1, 297. 36.
Chryſomela Minuta. *Linn. Syſt. Nat.*
Dytiſcus Minutus. *Linn. Syſt. Nat.* 2. 667. 23.—*Fn. Sv.* 778.
Dytiſcus Ruficollis. *Degeer. Inſ.* 4. 404. 18. *Tab.* 16. *Fig.* 9.

Linnæus placed this Inſect among the CHRYSOMELÆ, under the ſpecific name *Minuta*; but Degeer conſigned it to the DYTISCUS genus, and gave it the name *Ruficollis:* As a DYTISCUS it alſo appeared in the *Syſtema Naturæ*; and Fabricius, as well as other late Entomologiſts, have determined it to that genus, either calling it *Minutus*, or after Degeer, *Ruficollis*.

At Fig. I. is repreſented its appearance when magnified, and at Fig. II. the natural ſize.

Is not common; our ſpecimens were taken on *Epping Foreſt* in *June*. It is an aquatic Inſect, or one of that kind which paſſes through the ſeveral ſtates in the water, and ſubſiſts on the ſmaller kinds of Inſects, or on the fragments of macerated vegetables. Swims very ſwiftly.

FIG. III. IV.

DYTISCUS FERRUGINEUS.

COLEOPTERA.

DYTISCUS.

SPECIFIC CHARACTER.

Very convex. Above red-brown. Beneath paler.
Lin. Syſt. Nat.

FIG. III. natural Size, FIG. IV. magnified.

This Inſect is one of the ſame family, and was found at the ſame time and place as the preceding ſpecies. Is not very frequently met with.

FIG.

FIG. V.

DYTISCUS SULCATUS.

COLEOPTERA.

DYTISCUS.

SPECIFIC CHARACTER.

Shells brown, with four broad furrows, in which are grey-brown hairs. Head black, anterior part yellow, with tranſverſe ſtripes. Thorax black, with yellow marks. Beneath black.

Syſt. Ent. 231. 6.
Linn. Syſt. Nat. 2. 666. 13.—*Fn. Sv.* 773.
Geoff. Inſ. 1. 189. 5.
DYTISCUS *faſciatus*, &c. *Degeer Inſ.* 4. 397. 4.
HYDROCANTHARIS. *Raj. Inſ.* 94. 3. 10.
Friſch. Inſ. 13. *p.* 13. *Tab.* 7.
Roes. Inſ. 2. *Aquat.* 1. *Tab.* 3. *Fig.* 7.
Bradl. Nat. Tab. 26. *Fig.* 2. A.
Schaeff. Icon. Tab. 3. *Fig.* 3.
Bergſtr. Nomencl. 1. *Tab.* 5. *Fig.* 3. 4. 5. *Tab.* 7. *Fig.* 6. 7.

It is ſuſpected that the DYTISCUS *Sulcatus* is only the female of the DYTISCUS *Cinereus*, and by no means a diſtinct ſpecies, although Linnæus conſidered it as ſuch.

It is common in the month of *May*, and thence is found throughout the Summer. It paſſes through the different changes, and exiſts in the adult ſtate in the water; and like others of the ſame tribe, devours the ſmaller kinds of aquatic Inſect, or tender vegetables. It darts with aſtoniſhing ſwiftneſs in ſearch of its prey by the aſſiſtance of its hinder legs, which are well contrived for that purpoſe.

PLATE LXIX.

PHALÆNA RUBI.

Fox-coloured Moth.

Lepidoptera.

GENERIC CHARACTER.

Antennæ taper from the baſe. Wings in general contracted when at reſt. Fly by night.

No Trunk. Firſt Wings horizontal. Second erect.

SPECIFIC CHARACTER.

Antennæ feathered. Wings entire, with a whitiſh margin; two whitiſh tranſverſe waves on the firſt pair.

Syſt. Ent. 565. 35.
Linn. Syſt. Nat. 2. 813. 21.—*Fn. Su.* 1103.
Wilk. Pap. 25. *Tab.* 3. *a.* 19.
Amniral. Inſ. 32.
Roes. Inſ. 3. *Tab.* 49.

The females of this ſpecies are very rarely met with, as they conceal themſelves among the graſs; but the males are commonly taken when flying, and generally indicate that the females are near.

The Caterpillars will feed on the willow, but prefer the leaves of the bramble.

In this ſtate they are found about the latter end of June, July, or Auguſt; and remain ſo during the Winter. In April they change to the Pupa form, and in May they appear in the Fly ſtate.

The Moth has little to recommend it to notice; and the Pupa, like moſt others, is of a dull uniform black brown; it is therefore under the form of a caterpillar that it appears to moſt advantage.

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PLATE LXX.

FIG. I.

SCARABÆUS TESTUDINARIUS.

COLEOPTERA.

GENERIC CHARACTER.

Antennæ clavated, their extremities fiſſile. Five joints in each foot.

SPECIFIC CHARACTER.

Head black without tubercles. Thorax black, punctured, and covered with ſhort ſoft hairs. Shells deeply and equally ſtriated, ſo as to produce even and regular ridges between the ſtriæ, which are of an obſcure black, ſprinkled with ſmall ſpots of a deep yellow. Feet are of a dirty brown colour.

This beautiful animal was deſcribed by *Fabricius* as an Engliſh Inſect in his firſt work, the *Syſtema Entomologiæ*, but we have never ſeen a ſpecimen of it before. A figure of this Inſect may be found in *Fueſly*, *Jablonſky*, and *Olivier*; but theſe works being in few hands, we truſt our figure will not be unacceptable to the Engliſh Entomologiſt.

Fig. I. The natural ſize denoted by a line.
Fig. I. The magnified appearance.

FIG. II.

SCARABÆUS CONFLAGRATUS.

COLEOPTERA.

SCARABÆUS.

SPECIFIC CHARACTER.

The whole body black and ſhining, except the ſhells, which are teſtaceus, ſtriated, with an oblong ſpot, rather obſcure on each ſide near the external margin. On the head are three tubercles, the middle one larger than the others. Thorax convex and pointed.

This Inſect reſembles much the *Scarabæus Conſpurcatus*, but is a little bigger.

It is alſo figured by *Jablonſky* and *Olivier*, and is deſcribed by *Fabricius* in his new Work the Entomologiæ Syſtema.

Fig. II. The line ſhews the natural ſize.
Fig. II. Magnified appearance.

FIG. III.

SCARABÆUS QUADRIMACULATUS.

COLEOPTERA.

SCARABÆUS.

SPECIFIC CHARACTER.

Head black, without tubercles, but has two little protuberances over the mouth. Thorax black, ſhining, convex, and covered with impreſſed points. Shells black, ſtriated, with two red ſpots on each, one ſmall at the baſe near the outer margin, the other larger near the apex. Underſide, feet, and antennæ are black and poliſhed.

We are of opinion that the three Inſects in the annexed plate will be new to moſt of our Engliſh Collectors, notwithſtanding they are to be found in this country.

As it would be very difficult, if not impoſſible, to give a juſt repreſentation of theſe minute Inſects in the natural ſize, we have preferred giving the magnified appearance; the outlines which accompany each, and bear the ſame numbers, denote the true ſize of the original ſpecimens.

Fig. III. The line ſhews the natural ſize.
Fig. III. Magnified appearance.

This ſpecies is deſcribed by *Linnæus*, *Fabricius*, and other authors, and has been figured by *Olivier* and *Jablonſky*, being frequently met with in foreign cabinets. It is the ſmalleſt of this genus.

Olivier deſcribes this inſect as having the antennæ and feet red; but it is not ſo in our ſpecimen.

PLATE LXXI.

PHALÆNA VILLICA.

Cream-spot Tyger Moth.

Lepidoptera.

GENERIC CHARACTER.

Antennæ taper from the baſe. Wings in general contracted when at reſt. Fly by night.

* No Trunk. Wings depreſſed, deflexed. Back ſmooth.

SPECIFIC CHARACTER.

Antennæ, head, and thorax black, with a white ſpot on each ſide the latter. Firſt wings black, with eight large cream-coloured ſpots. Second wings and body orange, with black ſpots.

Syſt. Ent. 2. 581. 85.
Linn. Syſt. Nat. 2. 820. 41.
Geoff. Inſ. 2. 106. 1.
Harris. Aurel. Tab. 4.
Raj. Inſ. 156. 4.
Alb. Inſ. Tab. 21.
Friſch. Inſ. 10. *Tab.* 2.
Reaum. Inſ. 1. *Tab.* 31. *Fig.* 4. 6.
Roes. Inſ. 4. *Tab.* 28. *Fig.* 2.
——— *Tab.* 29. *Fig.* 1. 4.
Wilk. Pap. Tab. 3. *a.* 2.

Chickweed is a favorite food with the Caterpillars of this Inſect, but it will eat the leaves of the currant, white-thorn, nettle, graſs, &c. if the former cannot be readily procured.

The Caterpillars are black and foxy, or hairy; but in a leſs degree than the Caterpillars of Ph. Caja, Great Tyger Moth, which we have figured in the early part of this work.

About the latter end of April the Caterpillars have attained their full ſize, and change into chryſalis; late in May they appear in the winged ſtate.

It is by no means ſo frequent as the Great Tyger Moth, though not very rare; but it is infinitely ſuperior for the happy combination of its colours to it, or either of the Britiſh ſpecies of that tribe which are trivially termed Tygers: it is already high in the eſteem of collectors; and were ſpecimens of the kind leſs common, it would be in great requeſt among the Engliſh Entomologiſts.

Frequents banks which face the riſing ſun.

PLATE LXXII.

CERAMBYX ÆDILIS.

Long-horned Cerambyx.

Coleoptera.

GENERIC CHARACTER.

Antennæ articulated, and tapering to the end. Shells long and narrow. Four joints on each foot. Thorax, with lateral ſpines or tubercles.

SPECIFIC CHARACTER.

Antennæ conſiderably longer than the body. Head, thorax, and ſhells grey, with ſhades of brown, ſprinkled with yellow, and dark brown ſpots. Thorax ſpined.

Syſt. Ent. 164. 1.—*Linn. Syſt. Nat.* 2. 628. 37.—*Fn. Sv.* 653.

Cerambyx, &c. *Linn. It. Oel.* 8.
Degeer. Inſ. 5. 66. 5. *Tab.* 4. *Fig.* 1. 2.

Capricornus rufficus. *Petiv. Gazoph. Tab.* 8. *Fig.* 8.
Mouff. Inſ. 151. *Fig.* 2.
Friſch. Inſ. 13. *Tab.* 12.
Sulz. Hiſt. Inſ. Tab. 4. *Fig.* 27.
Act. Nidroſ. 4. *Tab.* 16. *Fig.* 8.
Schaeff. Icon. Tab. 14. *Fig.* 7.
Bergſtr. Nomencl. 1. 3. 5. *Tab.* 1. *Fig.* 5. 6.
Tab. 2. *Fig.* 1.
Fab. Spec. Inſ. 1. 209. 1.

This ſpecies is found in every part of Europe, though very ſcarce; and in England it is extremely rare.

And

And it is no leſs diſtinguiſhed for the very ſingular ſtructure and length of its antennæ, than for its rarity; that part which forms one of the moſt certain characteriſtics of almoſt every tribe of Inſects, conſtitutes the moſt prominent character in this.

Of its uſe, we are altogether ignorant, as the various opinions that have been given by former writers are now obliterated; ſome have ſuppoſed that they were the organs of hearing, or ſmell; and others have imagined that they were ſuſceptible of the leaſt motion in the ambient fluid in which they move.

Geoffroy diſcovered the organs of hearing in ſeveral amphibious animals, viz. in the toad, frog, viper, ſome other ſerpents, lizard, water-ſalamander, and ſkate *; and many of the moſt eminent anatomiſts of the preſent time have diſcovered by their reſearches into the animal kingdom, thoſe organs in different creatures. Profeſſor Camper, in 1763, publiſhed remarks on the organs of hearing in fiſhes, in the Harlem Tranſactions †: Mr. Hunter has deſcribed others in the Philoſophical Tranſactions ‡; and Dr. Monro has deſcribed and figured great variety of them in his large work on the ſtructure and phyſiology of fiſhes.

Probably, induced by thoſe diſcoveries profeſſor Fabricius endeavoured to aſcertain the organs of hearing in Inſects alſo; and about nine years ago publiſhed an account of this intereſting diſcovery in the New Copenhagen Tranſactions §, with figures of thoſe organs in the crab and lobſter: he found the external orifice of the organ in theſe animals to be placed between the long and the ſhort antennæ, the cochlea, &c. being lodged in the upper part, which Linnæus calls the thorax, near the baſe of the ſerrated projection at its apex; we muſt therefore conclude that the antennæ of Inſects are appropriated for ſome other purpoſes than thoſe it is at preſent ſuſpected they anſwer.

The Cerambyx Ædilis, Fabricius informs us, lives in the trunks of trees; its horns are moveable, as it can either direct them forward, or ſupport them in an erect poſition; and when it ſleeps, it reclines them along its back; it alſo reclines them when it walks quick, or has to paſs through a narrow track, as the leaſt reſiſtance from any thing in its way, would be very liable to injure, or break them off.

Our ſpecimen was taken in May.

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* Memoires Etrangers de l'Acad. de Paris, 1755.

† In the Year 1763, &c. ‡ Vol. lxxii. § Vol. ii. p. 375.

LINNÆAN INDEX

TO

VOL. II.

COLEOPTERA.

The Star * diſtinguiſhes thoſe which have not been named before.

INDEX.

HEMIPTERA.

LEPIDOPTERA.

NEU-

INDEX.

NEUROPTERA.

HYMENOPTERA.

DIPTERA.

APTERA.

ALPHABETICAL INDEX

TO

VOL. II.

Patella,

ERRATA

ERRATA to Vol. II.

Page 11, for Plate XL. *read* XLI.

Plate LXVIII, ſhould have been numbered LXIX.

Plate LXIX, ſhould have been numbered LXVIII.